



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/019,653	04/19/2002	Kazushi TSUJI	016778-0443	9953
22428	7590	04/20/2005	EXAMINER	
FOLEY AND LARDNER SUITE 500 3000 K STREET NW WASHINGTON, DC 20007			JACKSON, BLANE J	
			ART UNIT	PAPER NUMBER
			2685	

DATE MAILED: 04/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/019,653

Applicant(s)

TSUJI, KAZUSHI

Examiner

Blane J Jackson

Art Unit

2685

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 October 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 7-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 7-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 February 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1, 2 and 7-9 have been considered but in view of the amendment, are moot in view of the new ground(s) of rejection.

Drawings

2. New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because the block elements of figures 1-5 lack descriptive labels per 37 CFR 1.21(o). The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 2 and 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith et al. (U.S. Patent 5,818,883) with a view to Tiedemann, Jr. (US 5,926,470) and Yandrofski et al. (U.S. Patent 6,205,340).

As to claim 1, Smith teaches a radio base station apparatus comprising:

a mobile communication radio base station to transmit and receive communication to/from a plurality of mobile units located in different sectors (figure 4, multi-channel transceiver in a base station to support sectorized cellular operation, column 3, line 59 to column 4, line 15),

having a *diversity reception function* (,

said radio base station comprising a plurality of radio units, one radio unit comprising a first receiving unit and a first transmitting unit for one sector connected to a first transmitting and receiving T/R antenna for said one sector,

a second radio unit and a second transmitting unit for said one sector (figure 2, receive portion, figure 3: transmit portion and figure 4: transceiver, unit (406) is a transceiver, two represented for each of a three part sectorized system, receive diversity for service in the same sector utilizing receive antenna (412) and shared T/R antenna (420), column 5, line 56 to column 6, line 6).

Smith does not teach a transmission diversity function.

Tiedemann teaches a wireless with base stations supporting multiple sectors, column 6, lines 22-30, with the general receive diversity and shared T/R antenna as shown in figure 12, column 28, lines 21-42, the system taught by Smith. Tiedemann also teaches the receive diversity antenna (336) is modified as a second T/R antenna with diplexer and second connection to the transmitter (330) for transmit diversity, figure 13, column 28, lines 43-65.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Smith with the additional transmit diversity system of Tiedemann to improve the wireless performance.

Smith and Tiedemann teach a receive and transmit diversity function for service in the same sector but do not teach the second receiving unit and second transmitting unit connected to a second T/R antenna for another sector.

Yandrofski, with emphasis on cryoelectronic receiver front in base stations for mobile radio systems, clearly teaches the idea of a fault tolerant dual diversity antenna system with dual antennas in a sectorized three part system where each sector has two associated receive channels. Yandrofski further indicates each sector antenna diversity pair sources a receiver associated with a first sector and a receiver associated with a second sector (figure 7, column 11, lines 50-63).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the transceiver transmit/receive diversity system of Smith modified with the specific *diversity function* antenna system architecture of Yandrofski such that if one sector front end or receiver channel fails, another sector associated receiver carries or maintains operation where two sectors are degraded but all sectors remain functional.

As to claim 2, Smith teaches a radio base station apparatus where the mobile communication radio base station further comprises:

A control unit for detecting fault information of the plurality of radio units (figures 2-4, channel processors (228 and 448), column 6, lines 7-26), and

A base band signal processing unit for specifying the radio unit which is damaged based on a signal from the control unit and for stopping or invalidating receiving a *transmission* in said damaged radio unit (figures 4 and 17, channel processors (448) with diversity selection, diversity combining processing capability or redundancy, column 6, line 23 to column 7, line 56).

As to claim 7, Smith teaches a radio base station apparatus according to claim 1 further comprising a plurality of the baseband signal processing units (figure 4: transceiver with plurality of channel processors (448), column 6, lines 23-52).

As to claim 8 and 9, Smith teaches a method for preventing a radio function from being interrupted when a communication fault is caused in a mobile communication radio base station having a plurality of sectors and a diversity reception function, the method comprising the steps of:

Providing a first receiving unit and a first transmitting unit for one sector,

Connecting the first receiving unit and the first transmission unit to a first transmitting and receiving (T/R) antenna for said one sector (figures 2 and 3, figure 4: base station transceiver, first transmit/ receive pair (406) into T/R antenna (420), column 5, lines 56 to column 6, line 6 and column 6, line 53 to column 7, line 41),

Providing a second receiving unit and a second transmitting unit for said one sector (figure 4, second transmit/ receive unit (406) pairs where three pairs are shown, a pair for each of three sectors),

Detecting a fault signal from a multicarrier-type functional unit covering said one sector, said function unit including at least one of the first and second receiving units (figures 2-4, channel processors (228 or 448),

Transmitting a fault notifying signal to a base band signal processing unit based on the detected fault signal,

Invalidating an output signal from one of said first and second receiving units which caused the fault based on the fault notifying signal (column 6, lines 7-52).

Smith does not teach a transmission *diversity function*.

Tiedemann teaches a wireless with base stations supporting multiple sectors, column 6, lines 22-30, with the general receive diversity and shared T/R antenna as shown in figure 12, column 28, lines 21-42, the system taught by Smith. Tiedeman also teaches the receive diversity antenna (336) is modified as a second T/R antenna with diplexer and second connection to the transmitter (330) for transmit diversity, figure 13, column 28, lines 43-65.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Smith with the additional transmit diversity system of Tiedemann to improve the wireless performance.

Smith and Tiedemann teach a receive and transmit diversity function for multicarrier service in the same sector but do not teach connecting second receiving unit and second transmitting unit connected to a second T/R antenna for another sector.

Yandrofski, with emphasis on cryoelectronic receiver front in base stations for mobile radio systems, clearly teaches the idea of a fault tolerant dual diversity antenna system with dual antennas in a sectorized three part system where each sector has two associated receive channels. Yandrofski further indicates each sector antenna diversity pair sources a receiver associated with a first sector and a receiver associated with a second sector (figure 7, column 11, lines 50-63).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the transceiver transmit/receive diversity system of Smith modified with the specific *diversity function* antenna system architecture of Yandrofski such that if one sector front end or receiver channel fails, another sector associated receiver carries or maintains operation where two sectors are degraded but all sectors remain functional.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Csapo et al. (US 6,801,788) discloses a base station with various configurations of antennas and transceivers with receive diversity.

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Blane J Jackson whose telephone number is 571 272 7890. The examiner can normally be reached on Monday through Friday, 8:00 AM-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban can be reached on 571 272 7899. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2685

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BJJ

Nguyen Vo

4-17-2005

**NGUYEN T. VO
PRIMARY EXAMINER**